

Explaining the Unexplained: Situational Differences in Fundamental Attribution Error

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Abstract

Fundamental Attribution Error (FAE) has been one of the most investigated aspects of human bias. This research seeks to distinguish between the two most common explanations: the cognitive stage theory and the motivational explanation. Participants were given three scenarios in which participants were asked to explain a described event where something happens to another group of people. Each scenario differed from the others in terms of proximity to and effect on the observer, but all three were described without explanation. Mixed-method analysis of the responses of 81 participants contributed to a better understanding of FAE by supporting a hierarchical predictive model based on motivational explanations as the strongest model for FAE. Furthermore, the findings support an interaction between self-serving bias and FAE, but do not support cultural effects on FAE.

Keywords: fundamental attribution error, correspondence bias, China, motivational theory, cognitive stage theory

1. Introduction

Human cognition is necessarily limited by our ability to process only a relatively small amount of the sensory information we receive, leading our minds to rely on heuristics that are inherently flawed. One basic error in judgement is Fundamental attribution error (FAE), also called “correspondent bias” (Choi, Nisbett, & Norenzayan, 1999; Fleming & Darley, 1989; Gilbert & Jones, 1986), which happens when individuals underestimate the role of situational factors in determining outcomes while overestimating dispositional factors. This cognitive bias was described by Jones (1990) as “the most robust and ubiquitous finding in the domain of interpersonal perception” (p. 164). Research into it is extensive, and although the phrase “Fundamental attribution error” was first coined by Ross in 1977, explanations for attributional tendencies related to it are typically traced back to Heider (1958). With such a long history, it is no surprise that there are a wide variety of theories and models that seek to explain it. Concern about which type of model can best encapsulate the phenomena go back to at least Kelley and Michela, writing in 1980, but many of the most well supported models can be characterized as either cognitive or motivational.

1.1 Cognitive Explanations

One of the earliest explanations for FAE can be attributed to Heider (1958), who introduced a cognitive model for understanding attribution, analyzing it from the perspective of gestalt psychology. He argued that the behavior becomes dominant in our perception, whereas the situation is the background. In gestalt terms, this means, the behavior is the ‘figure’ and the situation is the ‘ground,’ thus the person’s behavior is the primary focus. This gestalt model was extended by McArthur and Baron (1983) who applied the ecological approach to visual perception into the social realm. This ecological approach suggests that perception must be based on sensory information about what we are experiencing. McArthur and Baron (1983) reference Gibson (1966, 1979) and Shaw et al. (1982) in explaining that perception has four characteristics that suggest it is based on sensory information rather than simply internal calculations. First, the function of perception is to allow adaptation to the world, and must therefore be based on information from the external world. Second, that external information comes to us as events, meaning it is dynamic and multimodal rather than static and uniform. Third, event information contains affordances that allow opportunities for interaction with the external environment. Fourth, individuals have different attunements that cause them to notice and react to different affordances (McArthur & Baron, 1983). Put simply, McArthur and Baron introduced a more detailed defense of Haider’s (1958) theory that internal attribution is based on external cues, and aligned that view with the broader theory of bottom-up processing that was being explored extensively in the literature related to sensory perception at the time.

However, there are many challenges to the explanatory power of the gestalt perceptual approach. For example, FAE can also be influenced by other factors, and manifests differently in populations differing in age, gender, and cultural backgrounds. For example, children have been observed to be less prone to FAE (Kassin & Pryor, 1985; White, 1988). Additionally, several studies have found that people from East Asian cultural backgrounds

are less likely to exhibit FAE and more likely to include situational factors in their explanations of behavior (Choi & Nisbett, 1998; Choi, Nisbett, & Norenzayan, 1999; Lieberman et al., 2005; Miller, 1984; Miyamoto & Kitayama, 2002; Morris & Peng, 1994; Norenzayan & Nisbett, 2000). Other research has also suggested that FAE does manifest in non-western cultures, such as China, including Taiwan, and India, especially in collectivism countries, suggesting FAE should be evaluated cautiously according to different regions (Krull et al., 1999). Besides, individual factors like participants' social engagement and mood as well as environmental factors, such as experimental manipulations, can affect FAE (Block & Funder, 1986; Forgas, 1998; Tetlock, 1985). Finally, an explanation of FAE based purely on sensory perception clearly falls short because it has also been demonstrated when participants read about behavior and then write their interpretation (Winter & Uleman, 1984). Taken together, all these findings show that the gestalt holistic view of a perceptual basis for FAE is too simplistic to be useful as a general explanation.

Thus, since the Gestalt approach is too broad and simple to explain a more complex situation in a more broad and mixed population under different socio-cultural background, A more comprehensive cognitive explanation for FAE is the stage model of perception, which has been used to explain a wider range of data available. One of the first stage theories was introduced Trope (1986) who suggests a two-stage model of spontaneous identification followed by deliberate inference. He argued that we identify information cues about the person based on the immediately available data of their observed behavior, whereas situational expectations are accounted for only as qualifications on the inferred disposition. These inferences are then combined with pre-existing knowledge about the person's disposition to determine the cause of their behavior (Trope, 1986). Therefore, the starting point for analysis is the person's disposition rather than situation. This explanation also clearly explains why FAE increases when people are cognitively busy, since they are unable to devote as much conscious thought to considering the cause of a behavior. Trope's stage model provides more support for the cognitive explanation of FAE because it is more flexible and takes greater account of internal processes, thus accounting for more differentiation among different individuals and populations (Gilbert & Krull, 1988; Gilbert, Pelham, & Krull, 1988).

1.2 Motivational Explanations

While looking into differences in FAE, Dr. Roos Vonk discovered that it manifested more often when individuals were considering behaviors that impacted themselves than when they were observing neutral behaviors. This suggested that it was the observer's perspective, not anything in the environment, that was influencing the manifestation of FAE. Thus, Vonk (1999) introduced a motivational explanation, distinct from prior cognitive explanations, saying that FAE can be explained by motivation because people perceive the world with the goal of predicting and controlling others' behavior. Now dispositional factors are more useful in this case, because they are stable and unchanging, leading to more consistent predictions, whereas situational factors are dynamic and thus less useful for forming predictions quickly (Vonk, 1999).

The motivational explanation is supported by a plethora of research studies which show that when rewarding outcomes are dependent upon accurate prediction of specific causes of behavior, FAE decreases. This suggests that FAE is a heuristic guiding intuition rather than a feature of deeper conscious analysis (Vonk, 1999, building on Berscheid, Graziano, Monson, & Dermer, 1976; Gilbert & Malone, 1995; Miller & Norman, 1975; Miller, Norman, & Wright, 1978).

One recent extension of this motivation explanation is the hierarchical predictive model, where character traits are considered the most stable and therefore, the highest consideration when explaining behavior. The lower levels of the hierarchical model are more transient cognitive features, such as beliefs and desires. Environmental information is then used to predict the cause of the behavior. Importantly, this model is updated when there is a prediction error, meaning that the internal cognitive model predicted behavior inconsistent with the observed behavior. If the difference is large, then the model will be updated, but if the difference is small, then environmental factors will be given more weight in the explanation (Bar, 2007; Friston & Kiebel, 2009; Westra, 2018). This predictive model of attribution is supported by neuroscience research that has found different parts of the brain are related to processing behavior inconsistent with expected beliefs, desires, and traits (Jastorff et al., 2011; Koster-Hale & Saxe, 2013; Ma et al., 2011; Saxe & Kanwisher, 2003).

1.3 Relationship Between Outcome and Attribution

The primary concern of this paper is whether observers display different types of attribution for unexplained outcomes that are positive and negative. Previous research has supported a self-serving bias in which individuals attribute positive outcomes to their own internal factors, and negative outcomes to external factors (Feather, 1983; Gentsch, Weiss, Spengler, Synofzik, & Schütz-Bosbach, 2015; Mezulis, Abramson, Hyde, & Hankin, 2004). However, past research has mostly analyzed individuals' explanation of their own outcomes. There is much less research published on how people explain the positive and negative outcomes of other people. At the same time, prior theorists (such as Spitzberg & Manusov, 2021) have drawn a connection between the fundamental attribution and self-serving biases, suggesting that the influence of each on a person's interpretation of a situation are linked, and that the scope of attribution theory may be more limited than it is sometimes presented as once other biases are taken into account. Hence, this paper will contribute to the research base by providing data about participants' attribution with respect to outcomes affecting others.

A secondary aim of this paper is to add to the overall diversity of psychological research. Most published research has been based on participants from North America and Europe, however the sample for this paper is primarily drawn from individuals living in China. This is valuable because, as previously stated, there is some research that supports the idea that the fundamental attribution error is more present in individualistic societies than collectivist societies, with Europe and North America usually overgeneralized as the former and China overgeneralized as the latter (Choi, Nisbett, & Norenzayan, 1999; Morris & Peng, 1994; Norenzayan & Nisbett, 2000). Additionally, recent reviews of literature have found that the overrepresentation of Europe- and North America-based research has led to the perpetuation

of certain assumptions, such as an overreliance on culture to explain observed behavior in non-whites (Causadias, Vitriol, & Atkin, 2018). Graham (2020) found that of 6300 articles on attribution theory published since 1980, only 100 mentioned race as a keyword, indicating that racial and ethnic differences have not been explored in this topic. The research presented in this paper did not use a diverse sample, but the sample used is predominately Chinese, which differs from the majority of studies, which have been conducted using North America and European samples.

2. Purpose

Considering cultural influences being mentioned previously according to Kassin and Pryor (1985), that cognitive explanation has its biggest limitation of failed to explain people's behavior of generating common perception failure all over the world despite the discrepancy of their own socio-cultural background. That's because previous findings have found that people will choose and interpret differently base on their own culture and social characteristics (age, gender, religion). Therefore, to separate cultural influences from people's cognitive perception in a situation, the survey asks for four demographic questions at first before participants give their answers for questions prepared for the real purpose of the research, to test attributional pattern. Furthermore, this research aims to add on cultural diversity to current existing research. Since most of the research available regarding FAE focused on only western countries, such as America and Europe, influences from eastern culture was seldom and limited (Causadias, Vitriol, & Atkin, 2018). Thus, based on one existing theory that eastern people are less likely to generate FAE, this research intends to test whether this theory is valid by focus on only on one culture and use participants from the same ethnicity to see whether Chinese participants, as an example of eastern culture, are really likely to generate less FAE and considering more situational factors in explaining a behavior or a situation or not.

3. Procedure

3.1 Instrument

An online survey questionnaire was created using Wenjuanxing (WJX), which is a survey creation website that is well integrated into WeChat, the most common means of communication in China. WJX requires individuals to have real-id verification on their WeChat account to distribute a survey, but it keeps participants' account information confidential from the researcher. Participants do not have to have an account in order to fill out the survey, so it was non-exclusive. The survey instructions and questions were all displayed in both English and Chinese. Each question was displayed on its own page

The survey contained a brief introduction paragraph explaining participants' right to withdraw and remain anonymous and finally asking for their consent for confidential use of their responses. The survey contained four demographic questions including participants' age, gender, birth place and current residence. These questions were chosen based on previous research that FAE may be affected by age, gender, and cultural background. All of these questions were open-ended so users could input whatever answer they wanted, in order to

avoid forcing labels onto would-be participants; however, they were required to answer all questions in order to continue to the questions.

After the introduction and demographic questions, participants were presented with descriptions of three different scenarios in order to examine people's attribution preference when explaining why an incident happened in ambiguous situations. The three scenarios were all presented as second-person descriptions of a group competition situation with many groups competing, where participants are in one group, and they observe something happen to another group. In the first scenario, the participant is in an outdoor survival competition, and they see another group's boat flip in a river. In the second scenario, the participant is in a scavenger-hunt competition and they see another group find the prize without finding any of the clues. In the third scenario, the participant is in a quiz competition and before it begins, one group moves from one table to another. All three situations are competitions and the other group is in the out-group and the competition is multi-polar, not just one group versus another. At the same time, each of these scenarios was chosen to measure attribution in a specific situation. The first scenario represents a situation where another group experiences a bad outcome, but it does not have a strong direct influence on the participant, since many other groups are in the competition. The second scenario represents a situation where another group experiences a good outcome, and it has a strong direct influence on the participant, since the competition is over and the participant's group lost. The third scenario represents a situation where another group experiences a situation changing but with no clear positive or negative outcome, and with no influence on the participant.

These scenarios were intentionally made quite different from each other to minimize order effect in the participants' answer. If the setting had been exactly the same for each scenario, then the attribution style of the first would have been more likely to influence their interpretation of the second. Therefore, the first was set in a large unfamiliar setting, the second in a large familiar setting, and the third in a small familiar setting. Still, each scenario was stated in a way that established the out-group members as having the same status or social power as the observer. This was important to control for the possible influence of status difference on attribution (Argetsinger, 2022).

Following each scenario, the participant was given an open-ended question asking them why the outcome occurred. The questions were all phrased without reference to the group: "Why did the boat flip?", "Why was the treasure found?", "Why was the table moved?" This type of phrasing was used to reduce wording bias toward attributing the outcome to the people. Additionally, the questions avoided the use of words implying subjective opinions, such as "think" or "believe" and instead asked them objectively. This design was structured for the purpose to achieve ecological validity, since previous research has found that FAE persists when people read about a behavior, and thus they will be able to imagine themselves being present as part of the scenario (Winter & Uleman, 1984). There is no time nor word limit for answers.

After reading the scenario, the participant had to click "Next" to view the question asking them to describe why the outcome occurred and were unable to view the story again once

they had moved to the question (there was no “Back” button). Although participants could only view the page for one story at a time, they could read the story for more than one time and there is a possibility that participants could quit the survey and enter it again to re-read the story while knowing the question. However, in order to re-read the story by exiting and re-entering, they would need to re-answer each question, so it was deemed unlikely that this would be a significant influence on results

3.2 Data Collection

As previously mentioned, research has suggested that individuals with Eastern Cultural backgrounds, including Chinese people, are less likely to generate FAE and interpret an incident or a situation concerning more situational factors. Thus, to test the validity of this cultural aspect of attribution theory, the population of focus for this research is primarily people with backgrounds living in China. Thus, the survey was distributed only on WeChat, and was expected to include a primarily Chinese sample. The survey was distributed by the researcher posting it to WeChat Moments (Friend Circle), which meant that it was visible only to people who are contacts of the researcher. This also means that individuals outside of China or of non-Chinese backgrounds could have taken the survey. The bilingual presentation of the survey also increased the access non-Chinese individuals had to the survey. Also, since the survey website (WJX) is designed only for personal sharing, the survey could not be posted online more broadly.

Once the questionnaire link was advertised, anyone seeing it could participate, but once they completed the questionnaire and submitted their answers, they could not retake the survey. The collection process lasted for two days after the survey was sent out, and the survey was closed after waiting for another 24 hours with no new answers submitted. A total of 81 samples were collected.

3.3 Data Analysis

After these 81 answers were recorded into the survey system, the response was read and classified it into one of five different categories based on what attribution was used by the participant: dispositional factors (such as, “cheated” or “they were lucky”), situational factors (such as, “the water was rough”), both dispositional and situational factors, an ambiguous answer (such as, “luck!”), and “I don’t know”. After two researchers separately categorized each response, different categories were chosen for 81 of the 243 total responses. Those 81 responses were shown to a third researcher to categorize, and then the final category for each participant was whichever category was chosen by two of the three researchers. After this procedure, the third categorizer chose a different category than both the original researchers for 33 of the 81 responses, which were then all marked ambiguous. During the categorization process, no responses to the demographic questions were visible so that they could not influence perception.

4. Results

Table 1. Self-reported sex and age of participants.

Sex		Age Groups				
Male	Female	Less than 20	20–29	30–39	40–49	50+
37	44	19	10	27	16	9

Answers for each question were collected from 81 participants in total, with roughly equal age and gender distribution, as shown in Table 1. Among the respondents, there were 37 males (46%) and 44 females (54%). Ages of participants were also fairly evenly distributed with nineteen under the age of 20, ten in their 20s, twenty-seven in their 30s, sixteen in their 40s, and nine over the age of 50. Forty-one participants took the survey in the same day after it was released, and forty took it the next day, but all answers were collected within a twenty-hour time frame.

Table 2. Distribution of attribution in each scenario

Categories	Flipped-boat scenario	Found-treasure scenario	Moved-table scenario
Dispositional	16	30	23
Situational	33	4	25
Other	32	47	33

Note. Other includes answers that used both dispositional and situational factors, as well as answers that did not give clear attribution.

Table 2 displays the distribution of attribution tendencies for each of the three scenarios. In the scenario where the boat, sixteen participants attributed the boat flipping to only dispositional factors of the group on the boat, thirty-three people attributed the outcome solely to environmental factors, while four people explained the event using both dispositional and situational factors. For the scenario where the treasure was found quickly, the opposite pattern was found. In this instance, thirty participants attributed the finding of the treasure to personal decisions or attributes of the group, while only four people explained it using situational factors. In the thirty participants who attributed this incident to dispositional factors, fifteen of them attributed it to the other group cheating, while the other fifteen disposition-attributing participants explain it by the luckiness of the group members. Given the scenario where another group moved their table, after participants' answers were analyzed, it was found that people's attitudes were evenly split, with twenty-three participants attributing the movement of the table to dispositional factors of the group and twenty-five participants attributing it to external or situational factors.

Table 3. Average time (seconds) for responses of each attribution type in each scenario

Categories	Negative (boat) scenario	Positive (treasure) scenario	Neutral (table) scenario
Dispositional	187	167	163
Situational	166	350	202
Other	188	172	172

Note. Other includes answers that used both dispositional and situational factors, as well as answers that did not give clear attribution.

Another meaningful result is the amount of time participants took when choosing each attribution, which is shown in Table 3. Overall, the average response time for respondents attributing an event to dispositional factors was 170 seconds compared to 192 seconds for environmental attribution. The longest average time taken for an answer was the four who attributed the finding of the treasure to situational factors.

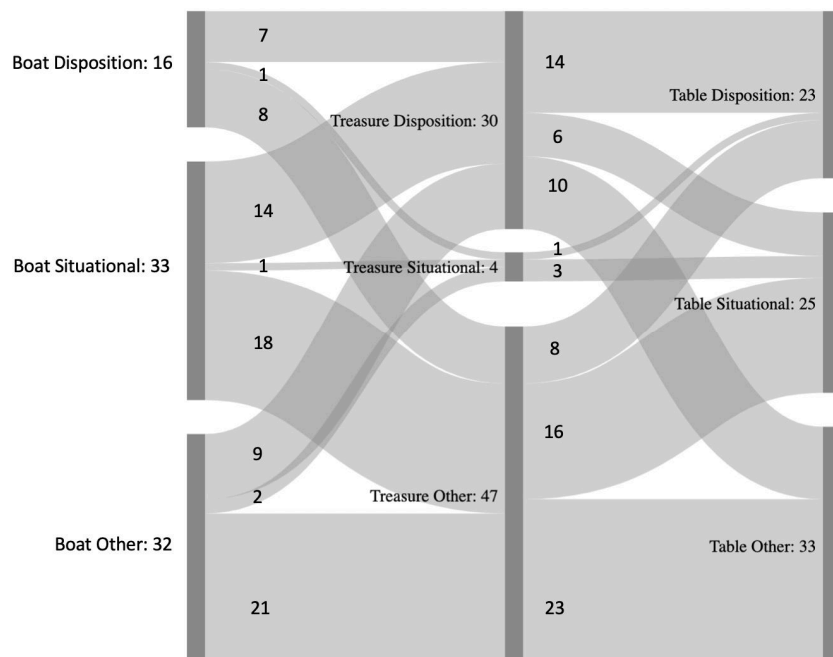


Figure 1. Changes in distribution of attribution types between scenarios

Finally, it is useful to see how many participants changed their responses between each scenario which is depicted in Figure 1. The most meaningful movement was between situational and dispositional attributions. Of note, there were only three participants who gave dispositional attribution to all three scenarios, and only one who gave situational attributions for each, suggesting that attribution is not static for individuals. Further supporting this, twenty-six participants gave at least one dispositional and one situational attribution among

their three answers.

Fourteen of the 33 individuals who used situational attribution in the boat scenario changed their answers to dispositional attribution for the treasure-finding scenario. Of these, only four of the fourteen participants returned to situational attribution for the third scenario, compared to six maintaining dispositional attributions. This suggests a slight order effect where individuals were slightly more likely to use the same attribution in the following scenario, though this is challenged by the fact that over half of the participants who used dispositional attribution in the first scenario did not do so in the second scenario and only four participants giving any clear attribution used the same attribution pattern for all three scenarios.

5. Discussion

5.1 Evaluating the Motivational and Cognitive Explanations of Correspondence Bias

Based on participants' answers to the first scenario (negative scenario), twice as many people used situational factors to explain why the boat was flipped. From this, it seems that people favor situational attribution more when explaining a negative outcome for others. This result suggests that when people observe a negative outcome, they tend to show empathy and pity towards the impacted others, and blame the situation or environment for their bad luck or tragedy. This outcome seems to support the motivational theory of Vonk (1999) because Vonk hypothesized that people would be more prone to FAE when the outcome of a behavior affected them directly, since that would be the most important behavior to predict. Since the flipping of the boat had little direct impact on the participant as the observer, FAE would not necessarily be expected.

However, data from the first scenario (the negative scenario) does not support the cognitive stage theory of attribution. This is because participants who attribute the boat flipping as the result of situational factors had a shorter response time on average, 166 seconds, than those who attributed it to others' personal reasons, 187 seconds. Hence, the findings of the first scenario support fail to support the stage theory (constructivist) explanation that people will generate less FAE and incorporate more situational factors into their explanations for a behavior if they spend more time considering it (Trope, 1986).

Participants' explanations of the second scenario stand in contrast to the responses to the first scenario. Over 85 percent of participants with clear attribution referenced dispositional factors. That is, they indicate that other's positive outcome is a result of the people themselves rather than the situation. Furthermore, 15 of those 30 who attributed the quick success to dispositional factors characterized the winning group as 'lucky', compared to zero people indicating that the boat in the previous scenario flipped because the people in the boat had bad luck. At the same time 15 participants attributed others' winning to cheating including exploiting relationships with the organizers. Thus, all of the participants attributing the quick discovery of the treasure to the disposition or actions of the group members did so based on neutral or negative traits that the members possessed.

This is once again supportive of the motivational theory of FAE, because the outcome directly impacts the participant, since the competition is over when the other team finds the

treasure, and thus, the participants were more likely to use dispositional attribution as predicted (Vonk, 1999). The relative frequency with which negative attribution was given also supports the self-serving bias, since individuals were more likely to ascribe negative traits, like cheating, to others who defeated them. However, the self-serving bias alone cannot account for the large preference for dispositional attribution over situational attribution, meaning the support for Vonk's (1999) theory is still strong.

Furthermore, the results show that in contrast to the first scenario, participants using dispositional attribution for the treasure being found did so quicker on average than participants giving other answers. This finding, unlike the analysis of the boat scenario, significantly supports Trope's (1986) stage model, which stated that the dispositional factor in FAE will generate more quickly. One possible implication for this dichotomy may be that the stage theory of FAE only applies when individuals are directly affected by the observed outcome.

Based on results from the first two scenarios, it is reasonably expected that in the scenario where the table was moved, which was a neutral situation with little impact neither on the participants nor the observed group, participants would be less likely to show dispositional attribution. As expected, data showed more situational attributions and more fewer dispositional attributions for the movement of the table than for the finding of the treasure. At the same time though, there were still more dispositional attributions and fewer situational attributions for the table than for the boat. This is somewhat surprising since Vonk's (1999) motivational theory suggests that participants should have been more likely to use dispositional attribution to explain the event with more of an impact on them, which was the boat scenario. Nevertheless, the lower situational attribution for the table scenario compared to the boat scenario is probably more due to order effect than it is evidence against Vonk's theory. This is because when comparing the second (treasure-finding) and third (table-moving) scenario, it can be seen that among individuals giving ambiguous answers for the treasure-finding scenario, twice as many used situational attribution than dispositional attribution for the table-moving scenario. This suggests that among relatively neutral observers, situational attribution was twice as likely as dispositional attribution for the table scenario, which is the same ratio as was seen in the boat scenario.

In addition to providing evidence for Vonk's motivational theory, the participants' explanations of why the table was moved support Trope's (1986) stage theory as well. This is because participants giving dispositional explanations for the table movement answered nearly 40 seconds faster on average compared to those giving situational explanations.

5.2 Self-Serving Bias

In addition to providing evidence about theories of attribution, participants' responses also support the self-serving bias that people have more empathy and less skepticism of others when they are not being negatively impacted. Here this is reflected by participants not only using dispositional factors to describe events more directly related to themselves, but also displaying negative attitudes when others have positive outcomes at their expense. Conversely, in the responses to the boat flipping over, they show empathy when they had

witnessed others experience something bad. This is in line with research on self-serving bias that has shown more empathetic attribution when events are more removed from the participant and less when events cause more direct influence, especially when outcomes are negative (Gentsch et al., 2015).

5.3 Gender or Age Differences

Results show, that there is no significant difference between gender choices. Both male and females display the same trend, that is, both of them attribute situational factor more in explaining the first (negative) scenario in which they observed other group's boat flipped; and both of them attribute more dispositional factor in explanation in the second (positive) scenario when they were more involved and motivated. As expected, their choices for the third neutral scenario where nothing explicit happened on both others and themselves was almost equally distributed. In addition to similar gender choices, age also doesn't seem importantly mattered in all three scenarios. Data also shows, that there is no significant difference in choices from different age group. This reaffirms the repeated findings of Scopelliti et al. (2018).

5.4 Cultural Differences

Eighty of the 81 participants were either born in China, or present in China at the time they took the test. Thus, based on copious amounts of research (see Choi & Nisbett, 1998; Choi, Nisbett, & Norenzayan, 1999; Lieberman et al., 2005; Miller, 1984; Miyamoto & Kitayama, 2002; Morris & Peng, 1994; Norenzayan & Nisbett, 2000) it was expected that there would not be strong FAE compared to other similar studies carried out in other regions. However, the results of this study align with Krull (1999), who found results similar to studies in other regions when conducting research in China. Although there was not a comparison group, the high rate of using dispositional explanations, and the split results on the third, neutral, scenario suggest there was not a strong preference for situational explanations. Thus, the application and extent of this culture-focused theory is still uncertain and requires further investigations.

6. Conclusion

In summary, this research has contributed some understanding of attributive behaviors by supporting Vonk's (1999) motivational explanation. The support for Vonk (1999) is indicated because answers collected from the survey found that people are indeed more likely to generate dispositional attribution when they themselves are strongly affected by a situation or a behavior. It also supports Gentsch et al.'s (2015) findings about the relationship between self-serving bias and FAE because when the participants experienced a direct negative outcome or loss from a situation, they were more likely to generate explanations casting other people negatively, whereas participants were more likely to generate situational attributions when they were less influenced by an incident or a behavior, thus less motivated to blame the person that is acting as a reason for the outcome.

At the same time, the research is more ambiguous with regard to its support of Trope's (1986) stage model of FAE because only in two of the three scenarios were people more likely to

generate dispositional attribution's during fast and quick thinking, but more situational concerns when they took longer to answer. Thus, the research synthesizing Vonk (1999) and Trope (1986) in the form of a hierarchical predictive model (such as Bar, 2007; Friston & Kiebel, 2009; Westra, 2018) seems to be most likely according to these findings.

At the same time, many questions remain uncertain, such as the extent of cultural influences of a specific culture on individual's attributional patterns. This research suggests that people with East Asian cultural backgrounds may not be as biased toward situational attribution as previous research suggested, but without a comparison group, this finding should be further explored.

Another uncertainty left unresolved by the findings of this research is whether the attribution of dispositional or situational characteristics suggests bias at all. As stated in the discussion, the results suggest that individuals were making attributions in part based on how the outcome affected their own situation, thus supporting the intersection of correspondence and self-serving biases, but recent research has suggested that seeming correspondence bias may actually be based on probabilistic attribution (Walker, Smith, & Vul, 2022). By not controlling for the probability of different outcomes, the research did not address this possible criticism.

This study had several limitations. For example, there were many ambiguous or unrelated answers as a result of the open-ended nature of the questions. This allowed the research to be less influenced by demand factors, but led to a much smaller usable sample of responses. Also, since most of the answers received were short, they may not have reflected the full thought of respondents. Still, this style of questioning allowed for an analysis of participant's initial interpretations.

The other big weakness is that the scenarios were too limited. There are only three scenarios which included only one negative, positive and neutral outcome for observed others. This means that observed patterns are mainly made on a cross-sectional basis, looking at how the whole group responded to different situations on average, rather than looking at how individual attribution changed. There is also ambiguity as to which aspects of the scenarios led to different results, since they differed in setting. In this case, the scenarios were made different in order to reduce order effects, but it also reduced comparability. Future research can focus on increasing the number of different kind of scenarios, including offering several variations of similar scenarios. In order to do this, a different sampling method will likely be needed, as the sample was voluntary and expected to have little motivation to finish the survey if it was too long.

Conflict of Interest Statement

The author states that there is no conflict of interest.

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categorizing responses.

Data Availability

The datasets generated during and/or analyzed during the current study are not publicly available due to the possibility that individual participants could be identified by their long-form answers and demographic information, but are available from the author on reasonable request.

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